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THE CANNON



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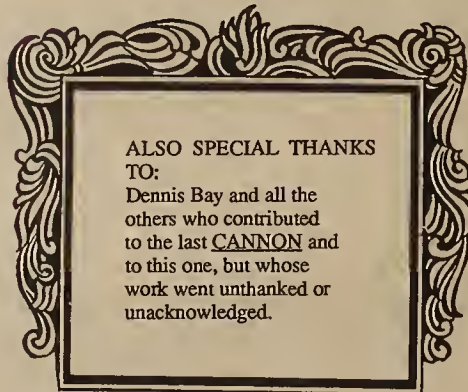
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ALSO SPECIAL THANKS TO:

Dennis Bay and all the others who contributed to the last **CANNON** and to this one, but whose work went unthanked or unacknowledged.

CANNON CLASSIFIEDS

Subscriptions to THE CANNON are available if desired.

Call Julie at 978-2917.

Anyone interested in helping with THE CANNON is most welcome. We are located in Room B670, Sandford Fleming Building, 10 King's College Road, Toronto.

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the Cannon is a publication of the University of Toronto Engineering Society. It is published (almost) monthly, to announce Eng Soc events, discuss faculty and university matters, and present current and technical information of interest to engineering undergraduates.

the Cannon encourages submissions; please type or print legibly.

Comments on *the Cannon* or on articles appearing therein are appreciated. The editors will make every effort to publish such material, but reserve the right to edit for brevity. The opinions presented herein are not necessarily those of the Engineering Society.

Looking for a fancy calculator without a fancy price? One HP-28C for sale; \$200 negotiable. Formerly owned by a little old lady from Pasadena who only took it out on the weekends. Contact Andrew Wyllie, Engineering Communications Chairman.

HP-28C with manuals. \$150 or best offer. Call 222-3863. Ask for Adrian.

Hammond C2 organ. 2 keyboards, 2 octave pedal board. Complete with Hammond PR-40 cabinet. Original 1940's model. \$3500. Call 340-0040.

Notice to all Photographers and Shutterbugs: Photographs and pictures are needed for the '89-'90 Handbook. Please submit any pictures of engineering events that you would like to be considered for inclusion in the Handbook (along with your name and phone number) in the Cannon Mailbox in EngSoc. Address Handbook pictures and articles to Joelle.

November 8, 1988 marks a historic date for our fellow engineer, Steffen William Waite. It is on this date Steffen advances through the portals of adolescence into the realm of manhood. The Civil Engineering Class of 9T0 congratulates Steffen on his 20th birthday, and wishes him luck in the future.

Congratulations also from: The Sausage King, Skippy, Jammer, Rickster, Pearsons, MadDog, The Duke de Sausage, The Turbo Tot, Coo-Coo, Scotty, Simon, Mike, the Pledges and Graduates of Phi Gamma Delta. Perge.

WANTED people to partake in the Craighleith Ski Party, Fri. January 6, 1989. \$45 includes lift ticket, round trip transportation by highway coach, and apres ski party with free beer. To reserve your spot deposit \$15 at the engineering stores by December 16, 1988. For more info contact Marc Bailey at 340-1278.

SOBERMAN COME BACK! We miss you!!! CIV9T0.

Hart House Debating Club is attempting to set a world record for the longest continuous debate. On Nov. 1, they began a debate that is expected to last 17 days. The debate will be non-stop, with no breaks. Talks must be a minimum of 15 minutes. Anjan Mookerjee doesn't think he'll have trouble meeting that requirement - he plans to speak non-stop for 24 hours, for a personal world record. Speakers are being asked to find sponsors. The club is trying to raise money to send two members to the World Debating Championships at Princeton. The club is attempting to talk their way into the Guinness Book of World Records by beating the current record of 314 hours, set by students at Oxford University earlier this year. According to Dan Tomanovich, IND9T0, and club publicist, all 3 campuses will be involved. During the daytime, the debate can be heard at Hart House. Contact Randy at Hart House for more information.

ANYONE interested in helping out with the **SKULE™ BOOK** (or Yearbook) '89, please leave your name and phone number, as well as the type of work you'd like to do, in the Yearbook Mailbox in EngSoc. Layouts of ads, grads, and pages of past events (Orientation, U of T Day), etc. must be planned. We'll be working on the Book during the Christmas Holidays, so, if you can spare a day, or a few hours, let me know.
Contact: Karen, Yearbook Editor.

ANYONE interested in taking pictures for *The Cannon* or for the Yearbook, please contact Ed or Anthony, Darkroom Managers.

Editorial

We urge all students to exercise their legs. No! I mean...their right to vote! There is a natural tendency for those who feel strongly about an issue will be moved enough to do something about it. But, what about everyone else? You have a say in this issue.

If you need more insight into the matter, read the LETTERS to the Editors on page 4 and the EngSoc and Sac Pages. Both views are represented. Or, come in to EngSoc and ask someone about it if you need more information.

Alex Rocha and
Karen Carneiro

Unparallel Thinking



Goofing Off.

This takes commitment. You and your friends must practice every chance you get. Wear casual clothes. Running shoes. But on no account should you be running. Go to a friend's place, a bar, your backyard. Have a beer. Tell stupid jokes. Be careful not to make any sudden movements. And avoid anything that looks like work. That's what goofing off is all about.



Molson Canadian
What Beer's All About.

INTRAMURAL TRACK AND FIELD MEET

Wednesday, November 9th, 1988
7:00p.m. to 11:00 p.m.

at the
Warren Stevens Building
(Spadina and Harbord)

Events to be held are:

Hurdles, High Jump, Long Jump, Shotput, and 100m, 200m, 400m, 800m, 1500m, 3000m Sprints.

All Students are invited to compete
(except those who are already on
the Varsity Track Team.)

Register through your College of Faculty
or
Fifteen Minutes prior to the race.

Letters

Letters to the Editors can be addressed to The Cannon
Sanford Fleming Building
10 Kings College Road
RM B670

TOIKE Under Fire

Once again, The Toike Oike has come under fire from the gods above. If you haven't heard yet, The Toike Oike has suspended publication until a referendum on its continuation is conducted.

What Happened.

It seems that President George Connell felt that the last issue of The Toike Oike was particularly offensive. Before talking to the Engineering Society about his concerns, President Connell wrote a letter to Stephen Dobson, Editor of the Toike issue in question, with copies being sent to the media, Joan Foley, and the Status of Women Officer. In his letter, Connell said that The Toike "derides, debases and dehumanizes other people". He continues on to say, "I disassociate myself and the University administration from the offensive material contained in this publication..."

On receiving this letter, Dobson and Keren Morehead, President of the Engineering Society, took immediate action. It was decided that the paper would be restricted to distribution to the Engineering buildings only, as opposed to previous cross-campus distribution. It was also decided that The Toike Oike Review Board would become more formal, as all the members of the Board would discuss the contents of the paper in a closed meeting before printing, as cited in the Engineering Society Constitution By-Laws: "11.74 ii) With specific regard to The Toike Oike, at least four of the seven Review Board Members must approve the contents of The Toike Oike prior to its delivery to the printers. This approval must take place during a meeting at which at least four of the Members are present".

Before all this happens, though, a referendum will take place. What the referendum will basically ask is if Engineering students support the use of their incidental fees to pay for The Toike Oike. There are three reasons why this referendum is not going campus-wide:

(1) Only Engineering students pay for The Toike, so they

should be the ones to decide if they want it or not,
(2) The Toike will not be distributed to the entire campus anymore, as mentioned earlier, and
(3) The Engineering Society does not have the power to run a campus-wide referendum.

All Engineering students are encouraged to vote in the upcoming referendum. There are some rumours circulating that if The Toike is voted out, it would, in fact, go underground and become cruder than before. These rumours are not true, as it would be close to impossible to accomplish this. It would require The Toike to become self-sufficient, and probably would require too much work to be worth the effort. "We will not continue to support The Toike if it does go underground," said the Vice-President of Finance of the Engineering Society, Rob Drascic.

The outcome of the referendum will ultimately decide the fate of The Toike. President Connell does not have the power to shut the paper down, nor does anyone else on campus. I might also mention that besides President Connell, nobody else on campus has seen fit to write an official complaint to the Engineering Society.

J. Andrew Wyllie
Engineering Communications Chairman

Against NO Campaign

I wish to express my surprise and disappointment at the theme of the "Engineers Against The Toike" poster campaign. The upcoming referendum regarding the future of The Toike is an important one for this faculty, and thoughtful debate should be encouraged. It is unfortunate, then, that those who oppose The Toike for worthy reasons have chosen a misleading, gender-oriented theme which obscures the principal issue, namely, professionalism.

To suggest that the future of The Toike ought to be decided on the basis of loyalty to, or sympathy with, womanhood, reflects an interpretation of

I am proud to be an engineer. I was proud to be an engineer (through rubber dolls & all) and I am still proud to be an engineer this year.

I think I will just reiterate the letter I wrote to the Cannon last year. Throughout the history of this university (and every other one as well), engineers have been labelled as "bard drinking, sexist slobbs"; the bad guys on campus; the faculty everyone LOVES to hate.

I have been in engineering for three years now and I have not met any male sexist pigs. I know the people who write for the TOIKE and they are definitely not sexist. That's probably why I am not offended by it, because I know it is a joke.

The people who are offended

Defeat the TOIKE

I am proud to be an engineer for many reasons. The Faculty of Engineering boasts, among other things, excellent community spirit and academic achievement. However, we deserve much shame for some of the attitudes we display to the rest of our university. We require a new way of thinking about certain groups in our community, and a good way to start is by discontinuing The Toike Oike. I ask for your support in order to defeat the

this issue at least as shallow as some Toike humour. Professionalism is not a woman's cause. That much of the material in The Toike is vulgar and tasteless and may jeopardize the stature of the professional qualifications we work diligently to obtain, can be recognized by male and female students alike. The "No" forces have failed to acknowledge this point and to focus debate on the crucial issue in favour of making an unnecessary and counter-productive sex distinction the subject of their posters.

Claire Kennedy
CHEM 879

by the TOIKE have this image of male sexist engineers writing things that will degrade and dehumanize women and any other minority (majority) group we can find.

But what are we doing to dispel this image? Plenty! The Engineering Society has had more female presidents than SAC. Forty percent of the EngSoc officers are female. The L.G.M.B. (the most sexist, bigoted and discriminatory group on campus) has a (gasp!) FEMALE BNAD LEEDUR! There's Shinerama, the Med-Sci ramp, etc, etc. The list goes on and on, but all of these defences are futile. People only want to hear the scandals and make them BIGGER.

If you think getting rid of the TOIKE will somehow change this image, you are stupid as

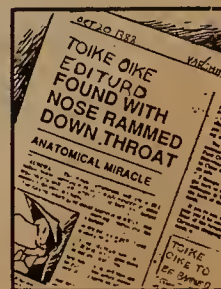
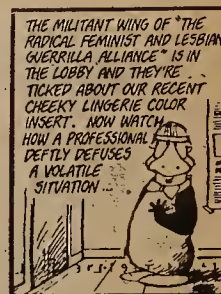
well as blind. They will just find something else to rag about, and then something else until they have bled our SKULE spirit dry.

The TOIKE may not cater to everyone's sense of humour, but writer's meetings are advertised and anyone can attend and WILL BE HEARD.

Another way to be heard is to participate in the referendum. Vote whichever way you feel is best: Yes, Yes with stricter guidelines or No (Note: if the No vote wins the TOIKE will not be going underground).

Keep up the spirit SKULEMEN (I refuse to put SKULEPERSONS, yuk!)

Donna Cieszyńska
LGMB Leedur
IND 9T0



Bill McCausland

Eng. Sci. 8T9

Godiva's Lunch Box



by Keren Morehead
and Stephen Dobson

DA PLACE: The Shanghai Restaurant.

WHEREABOUTS: 409 Spadina Avenue (on the east side), South of College Street.

PHONE: 596-7311, Reservations not required.

CHARACTERS: Keren Morehead, Ed Vigmond, and Julie Wilkinson.

DRESS: Casual (everything from ripped jeans to suits).

KEREN: This looks like a nice place to have lunch, and besides, I've been here before, and the soup's always hot.

ED: Yeah, that and you promised The Cannon you'd review this restaurant last month.

JULIE: Yes, Ed, this establishment looks simply marvelous. I'm sure we'll enjoy it.

Later, inside the restaurant.

KEREN: We'll have the #1, #2, and #4 lunch specials, please.

Julie had the Sweet and Sour Squid with Rice, Ed had the Sliced Pork with Broccoli on Rice, and Keren had the Pork Fried Rice with Sweet and Sour Chicken.

QUIET WAITRESS: O.K.

JULIE: I notice that this eating emporium is licensed under the L.L.B.O.

ED: I don't feel like drinking. I have kick boxing tonight.

JULIE: This is fine oriental tea. I think it's really nice that they give it to us for free.

A few minutes later, the soup is brought to the table.

KEREN: So, what do you say?

ED: Mmmm mmmm good.

Pass me another Kleenex for by dose, please.

JULIE: I say, this soup has an extraordinarily interesting flavour to it. It's viscosity varies. The viscosity of the liquid portion is $2E-3 \text{ Ns/m}^2$. There are things in this soup, like chinese mushrooms, that have viscosities as high as about 1.5 Ns/m^2 .

KEREN: Will you please get that viscosity stuff out of my soup?

ED: I think this is excellent hot and sour soup. In fact, I'd dare to say that

Given: Si= a hot and sour sound,

Sshanghai Si, if i (not =) shanghai.

KEREN: I'd agree, I guess that's why you're in Grad SKULE.

ED: Well, let's go to SUDS sso I can prepare for kick boxing.

KEREN: You behave yourself.

ED: Yes, Ms. President.

JULIE: This is excellent value for the money. I can't think of anywhere else to go for lunch and spend only \$13.00, including tip.

KEREN: Yes, in all, even though some might not appreciate plastic tablecloths and plastic chopsticks, I'm going to come here again.

ED & JULIE: Here, here.



Sci-Stuff Black Holes

PART ONE

A star uses hydrogen as its fuel for fusion. But as time goes on, the amount of fuel diminishes and the centre of the star becomes very hot, causing the star to expand. As the outer surface of the star cools, its colour turns red and a "red giant" is formed. When the hydrogen is almost depleted, the thin outermost layers of the star dissipate into space while the core, having no more fuel, quickly collapses under its own gravitational pull.

Due to its large mass, this collapse is so extremely rapid that the electron shells collapse and the nuclei come closer together, forming a "white dwarf" star. If the star collapses suddenly enough, it explodes, causing a supernova, and emitting large quantities of energy and matter. However, if a star's mass is 1.4 times that of our sun, the collapse can cause the electrons to fuse with the protons, forming neutrons. Since there is nothing to keep the neutrons apart, gravitational attraction forces them closer together, until they are touching. The result is a "neutron star". If the star's mass were large enough, it would be possible for even its neutrons to be smashed by the force of this collapse. The physicist Robert Oppenheimer determined that if the collapsing object were 3.2 times the mass of our sun, its gravitational pull while collapsing would be strong

enough to do just that. Once the neutrons are gone, nothing remains to check the star's collapse. The sun would continue to shrink to the size of a pinhead, then beyond our comprehension to infinity. According to the theory of general relativity, gravity is unstoppable. The star's contents would collapse to nothing--a geometric point of zero dimension, a singularity in space-time where a vast mass occupies zero space. In other words, a black hole.

Black holes are immensely compacted "balls" of matter with the largest gravitational pull known to man. Neither general relativity nor quantum mechanics can explain to us these baffling objects. Black holes defy all our traditional laws and theories, although it is now generally accepted that they do exist. For years on end, scientists have scanned the skies for concrete evidence of their existence. Many different methods have been and are being used.

Binary star systems could provide a way to document the existence of these elusive phenomena. These systems, where two stars rotate about a common point, are relatively common in our universe. Even when they are so close to us that they appear as one star, their binary nature can be revealed by the occurrence of periodic reciprocal eclipses, or by the oscillations towards lower and higher frequencies of the two groups of spectral lines that are emitted by the

pair of stars. From this data, both the mass of the stars and certain orbital parameters can be calculated. If one of the two stars is much fainter than the other, we can still deduce the mass of the system even though we can't observe its spectrum (by noting the oscillations between higher and lower frequencies of all the lines of a single spectrum). Should the invisible companion have a mass greater than three solar masses, we could suspect the presence of a black hole. Of course there are other explanations for these dark companions. There may actually be a number of stars, all rather faint, or there may not be a large mass at all. In estimating the mass of the luminous component, certain adjustments must be made for distortion due to the earth's atmosphere and other factors, sometimes giving inaccurate values.

If a black hole were in a binary system, it would be possible to capture gas from its luminous companion. The gas, rushing into the black hole, would be heated to extremely high temperatures, and x-ray emissions would result. Earlier astronomers had problems checking the skies for these emissions as the earth's atmosphere blocks out these dangerous rays. Once satellites were sent into space, many of these x-ray sources were found. Due to careful

continued on page 7



Interview with Professor Kunov

By Benjamin Lee and Kevin Linfield, Eng Sci 9T1

We take it for granted that we can hear, but do we really understand how sounds in the air are converted to nerve impulses and then to patterns we recognize? Professor Kunov of the Institute of Biomedical Engineering has had a long standing interest and has done a great deal of research into the behaviour of sound.

Although the science of sound and acoustics is a very old discipline, it is, even now, not very well understood. Noise, or sound, itself is very complex and its study involves many aspects of many different fields. Electrical engineers are involved with the manipulation of sound with electrical and electronic systems. Architects and civil engineers must consider the effects of noise and vibration, and often have to control them in their work. However, the phenomenon of sound itself is a physical or thermodynamic problem. The human perception of sound, on the other hand is primarily a medical interest: how human beings perceive and interpret the characteristics of sound. The ability to use and manipulate noise in our everyday lives is becoming increasingly important. The value of audio communication can be easily seen all around us, with our telephones, radios and even televisions. Social interaction is perhaps more based on sound than on sight.

Laser interferometer used for examining the resonance



Because of all of this, we no longer accept deafness as a fact of life in our society, and at the very least seek to replace any loss of hearing with substitutes, since we cannot as yet replace the real thing. And of course thinking from a purely commercial point of view, there is the continuous demand for higher fidelity sound reproduction especially in music, and any advance requires an increase in our comprehension of the nature and mechanics of sound.

The Biomedical Acoustics Laboratory under the direction of Professor Kunov, is one of the world's leading centres in research into the theoretical nature and the applications of acoustics. It performs some very unique experiments into the behaviour of sound, how we perceive it, its use and its control. Experimental facilities in the lab include a large acoustic sound proof chamber, a real time digital signal analyzer, a digital signal synthesizer, and a small technical computer, all of which allow researchers to perform rapid analysis and manipulations of sound under controlled conditions.

One of Professor Kunov's major efforts has been in the study of the transmission of noise from the environment through the outer and middle ear and into the inner ear, where it is converted into nerve impulses. In conjunction with this research, he and his colleagues have, over the years, developed the

patterns of insertion type hearing protectors. (ie ear plugs)

Acoustic Test Fixture (ATF), a model of the gross physical structure of the human hearing system.

The project developed because, while the behaviour of vibrations outside the head has been well documented, their behaviour inside the head, as sound passes from the environment through the ear canals, is not as well understood. As sounds pass through various parts of the ear, they are altered in amplitude, frequency and phase. The ATF was design to mimic these changes in transforming sounds in space into reproductions of the vibrations impinging on the inner ear. It consists of a model human upper torso and head, approximately identical in mass distribution to the real thing, together with an artificial outer and middle ear. A microphone has been placed inside the head in the place of an inner ear. The exterior of the model and interior sound canals have been covered with synthetic skins specially designed to reproduce as much as possible, the mechanical and vibrational properties of the human epidermis and head. The system allows experimenters to, to some degree, quantify what

vibrations are really reaching a person's sound sensors in the inner ear, rather than just what is occurring outside the head, and how changes in both internal and external conditions, and the vibrational patterns themselves, react cause changes at the receiving end. For example, one well known use of the Test Fixture is in the quantification of the amount of protection afforded by various forms of hearing protectors, both in terms of overall protection, and protection against certain specific types of noise such as large impulses.

Rarely static in design, the next stage in development of the ATF is already underway. It will involve the combining of the physical characteristics between the ear and mouth passages. The new fixture will have the ability to breathe and perhaps speak, and will incorporate new synthetic membranes and muscle, to better mimic the mechanical



Professor Kunov, in the control room of the Acoustics Laboratory's sound proof test

impedance and the general ability of the sound channels in the head, to transmit vibrations. Also the new head will not be made up of a single model but will be computer manufactured, and researchers will be able to alter and produce head forms with many different physical characteristics, while, with the help of computers, still retain a basic "correctness" of form.

Other projects presently being undertaken in the lab include such topics as the measurement of the vibration patterns of hearing protectors using laser interferometry in order to determine their resonance characteristics. Another major research area is the substitution of artificial devices to compensate for hearing loss. For example, one group of researchers are experimenting with using flashing Light Emitting Diodes as a partial substitute for hearing, displaying visually certain information such as general pitch and volume, about any sounds received. A different experiment presently being tested at Institute affiliated hospitals (such as Mount Sinai and Sunnybrook Hospitals) is the direct implantation of electrodes in the cochlea, the actual vibration sensing part of the ear. It is hoped that this will eventually lead to hearing substitutes where the actual pattern of nerve impulses is transmitted to the carrier nerves. In fact, this is one of the long term goals of the biomedical field: the

connection of electronics to human nerves. This would allow the direct stimulation of the senses through an external source such as the hearing aid implants mentioned, which would in effect allow the replacement of damaged human senses with electronic substitutes.

Throughout the years, working in conjunction with a variety of academic, medical and industrial institutions, Professor Kunov and his colleagues have done much to extend understanding of the phenomenon of sound. However, as Professor Kunov stated the science of acoustics will never be completely understood, so this already old discipline will continue to develop for a long time to come.

The authors of this article would like to thank and gratefully acknowledge the assistance of Professor Kunov in the researching of this article. Professor Kunov welcomes any inquiries about any of the projects mentioned in this article, or his work in general. For further information, please feel free to contact him at the Biomedical Institute, on the fourth floor of the Rosebrugh Building, on the Saint George's campus of the university.

Science and Technology

The Case for Paradoxes of Time Travel

The Case for Space - A Lecture in the Arthur Andersen and Company Series

By: Benjamin Lee
Eng Sci 9T1

On September 29, University of Toronto engineering students and staff had an opportunity to hear "The Case for Space", a lecture by Mr. Christopher Trump, Vice President of Corporate Affairs of the distinguished Canadian firm, Spar Aerospace. This lecture was one of a series of presentations at the university designed to help bring together engineering students and members of Canada's engineering industry and was sponsored by the management firm of Arthur Andersen and Company. Mr. Trump himself has enjoyed a long association with the aerospace field, both with Spar and with the U.S. National Aeronautics and Space Administration (NASA), allowing him to explain to students some of the rationale behind space exploration.

The future of the development of space, as it relates to government and industry participation, especially in the aftermath of the Challenger space shuttle disaster, was the main topic of his speech. Previously space exploration and space-related research have produced many technological innovations and economic benefits. Mr. Trump's argument was that the expectation of immediate returns, upon which the American space program was, until recently, heavily based, is not realistic. Instead, the development of space, mostly supported by government, would be more likely to extend the human presence in space, leaving industry free to pursue those developments with the greatest economic potential.

by Kevin Linfield

"par'a dox : noun 1. a statement that seems contradictory, unbelievable, or absurd but that may actually be true in fact. 2. something inconsistent with common experience or having contradictory qualities." - Webster's New 20th century Dictionary

Imagine that time travel is/will be/has been possible, and that it is possible to move forwards or backwards in time. If this is impossible, nothing can be done, and then it's case closed. We experience time as only going forward at a constant rate. If that were to change all of a sudden, we would run into a few difficulties understanding and coping with the knowledge that what we've done and what we will do can be altered.

If a person could go back in time, could it be possible for history to be changed for his or her personal benefit? For example, you could go back to 1968, when gold was \$38 an ounce, and buy millions of dollars worth, and then move to 1983 and sell it for \$700 or so. I could make a huge profit and have the potential for unlimited wealth. Assassinations of important world leaders would be possible. The position of the Cold War would be entirely different if Stalin never made it to Russia. All events in our present time path would have been altered. The question remains: would I still exist? Due to the fact that we are here because of a multitude of improbable events, (e.g. how did your father meet your mother?) we cannot be sure of ourselves existing in different time streams. But we do exist. Therefore no one could have gone back in time and changed our history. That is, assuming we could perceive a change in our history. Check out a theory of *deja vu* at the end of this column.

If we were to back a year, could we meet ourselves? Imagine a telephone call: "Hello? This is yourself talking from the future. Wait, don't hang ..." (click).

Could two people occupy the same place at the same time? Or would the "you" a year ago cease to exist for the period you were visiting for? If this were the case, you would be missing part of your life from the original time stream. If time is continuous (and we have no reason to suppose so far that it isn't) could someone end up in an infinite loop of travelling back in time, building their time machine, and then going back in time to do it over again? Or would another one of them be produced each time that then went back, allowing an army of "time clones" to be produced? As far as I am aware, no one has cloned themselves due to time travel, and no recorded cases exist of having the same person at the same place and the same time. If I go to a point in the past, I cannot exist "then", as well as "now" simultaneously. But I did exist in my past, and I do exist at this time.

Now let's get confused over the future. If I were to go ahead one year, my journey would have already happened and been recorded in the future time stream. If my report had been widely publicized, people in the future would have been expecting me. But the part of my life I skipped during that year will not have happened yet. Where have I been? I would have a void to fill somehow, but not having lived it, I couldn't fill it.

What if I made it to the future, only to die in some sort of accident. From the point of view of the past, time travel would still not be possible as I would not be able to return to show it possible. Hopefully someone would verify my experiment and be successful in travelling in time. To the future time stream, time travel

would exist, but the process would have been lost because it would have been lost with me. The past would never know if it were an accident that killed me, or the fact that time travel is not possible, and any attempt at it results in death. Time travel would never exist if it really does.

Time is another dimension, so why can't we move in it? I exist in a total of four dimensions and I know for a fact that I can move quite freely in three of them. What is preventing me from moving in the fourth direction? If I walked in a line down a road and made a loop before continuing on, wouldn't that look the same from another dimension (say the fifth) as going along this timestream, dropping back a day or so before continuing on again?

We are subject to events termed as "*deja vu*". Certain events happen that we know have not occurred before but we have the impression that

they already did. Is this just similarity association, or is this the result of someone in the future (who will be) experimenting with time travel. They come back in time, observe, possibly alter some event, and return to their timestream. From our viewpoint, we must now relive part of our lives. If time is continuous, which we must assume if we plan to travel in it, we must start where the altered event commences and relive part of our lives. Depending on how much that person altered Earth's history, some things we did in our time frame must be the same the second time around. Could these "flashes" of insight be thought travelling over time? Is *deja vu* proof that time travel will exist in the future?

Until the human mind can understand these questions and come up with easy solutions, we are limited to three directions of motion. And as the saying goes, "only time will tell".

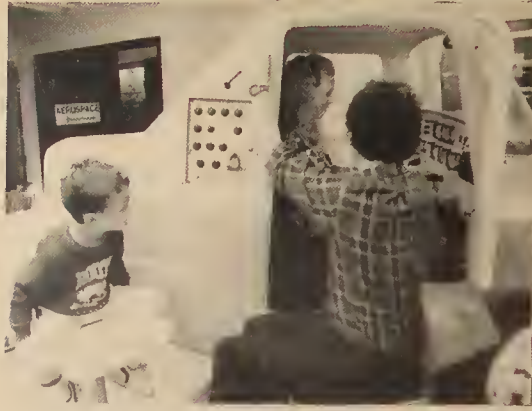
Black Holes

continued from page 5

observation, scientists discovered six intense x-ray sources associated with binary systems. Five of these showed a periodic disappearance of the x-ray emission which could only be interpreted as the periodic occultation of the x-ray source by another object (later identified as a visible companion in all five cases). The sixth, Cygnus X-1, did not show any of these disappearances. All of these six systems were carefully scrutinized and only Cygnus X-1 had a solar mass greater than three (in fact, its solar mass is eight). A great deal of attention was turned to this star system and an emission line of helium was found corresponding to the predicted gas stream. Based on this evidence, it is now generally accepted that Cygnus X-1 has a stellar sized black hole.

It has been theorized that as a star collapses, the mass is concentrated into an increasingly small volume and, as the plane representing our universe sinks deeper and deeper, the curvature of space becomes less pronounced. Einstein and Rosen determined that this "wormhole" links two singularities in two different universes, or two points in our own universe.

As the search for knowledge and understanding of everything around us continues, we will advance into the unknown and unravel more of its mysteries. The quest for knowledge is constant, and we will probably never be satisfied. No matter what new answers we find, we also discover more unanswered questions. Until interstellar travel becomes a reality, all we can rely on is our theories and observations made from earth.



U of T Day

Short Changed By Erindale

by Bruce Caldwell

This past U of T Day, the traditional Homecoming Parade was replaced by a new event, Chariot Races. BUT, after qualifying in the preliminary Chariot Parade and winning in the first racing heat, the proud Engineering/Rehab chariot was disqualified.

The Engineering/Rehab chariot, an outhouse on wheels, was accepted as a legal competitor in the actual races by virtue of the official letter of acceptance that its crew received after the morning parade. The outhouse then lumbered across the campus to Varsity Stadium in preparation for the races.

There, the first racing heat was held to determine which chariots would compete in the half-time finals during the Homecoming football game. It was Engineering vs. Erindale.

Moments before the race began, members of the Erindale team confronted the Engineers/Rehabs, complaining that the Engineers/Rehabs' all-male pull-team was against the rules. The Engineers/Rehabs didn't believe it, so they thoughtfully asked a race official, a "Blues Brother", for the true regulations. The ruling came: the sex of the members of the pull-team didn't matter; the Engineering/Rehab team was fine.

The race was on. The Engineering/Rehab chariot took an early lead, lengthened it, and creamed the Erindale chariot.

It was only after they had lost the race that the Erindale team lodged an official complaint about the male/female ratio of the Engineering/Rehab chariot pull-team. Eventually, the Engineers and Rehabs were told that they were disqualified for failure to comply with the competition rules. This verdict resulted in a lengthy debate between the Engineering/Rehab crew and a collection of SAC officials, SAC President Bill Gardner included.

Final Verdict: The Engineers and Rehabs were disqualified.

No document listing the official rules of the chariot race was ever produced, nor was there given any opportunity for the Engineering/Rehab crew to modify its pull-team and to re-race. The trophy went to Erindale, leaving the Engineers and Rehabs humiliated.

Is this truly the way our Student Council is intended to function?

Notice of Interest:

It seems that the sacred SAC "War Room Door" has been recovered, but it has mysteriously developed some "dents" that appear as though they may have been caused by cannon blasts. Funny thing, eh?



Career Centre News

Career Day Results

Employer Evaluations:

Was Engineering Career Day useful to your organizations?

- It was an excellent opportunity for us to promote interest in our firm prior to our information session.
- Good exposure
- Several potential job applicants.
- We saw a good cross section of third and fourth students.
- Great opportunity to talk with undergrads
- Familiarized us with the Engineering Faculty and opportunity to provide info to students.

Comment on the Calibre of U of T students.

- we met a fair cross-section and were very impressed.
- difficult to tell. Some appear excellent.
- Appeared more professional than other Universities.
- good - some very well prepared asking relevant questions.
- Very enthusiastic, interested and intelligent
- We will hopefully be able to hire many this year.

Your overall impressions and suggestions for improvements:

- Well organized
- serious students might want to leave a resume with a companies
- a terrific recruiting opportunity.
- should be targeted to third and fourth year students
- limit to graduating students or separate summer employment.

Student Evaluation:

I found the event:

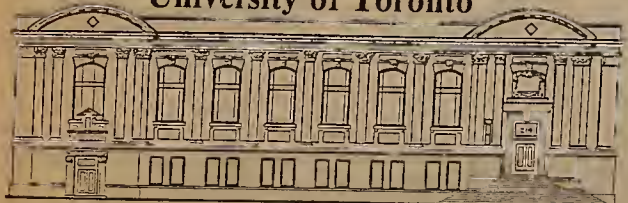
extremely useful	31%
very useful	36%
moderately useful	30%
not useful	3%

What did you like about Engineering Career Day?

- variety of companies
- actual engineers talking about jobs
- introduces you to a variety of companies that hire your discipline.
- friendly and informal atmosphere
- lots of info about potential employment
- presents opportunity to meet possible future employers
- good chance to get applications.

In September the Career Centre organized a highly successful Engineering Career Week. Students were invited to experience informative presentations. On the final day all students were invited to attend the Engineering Career Day. This day offered students the opportunity to meet perspective employers. Those who took advantage had the chance to meet representatives of 35 companies; students were able to get advance information on engineering jobs for 1989. Both students and participating companies were asked for an evaluation and here are the results.

University of Toronto



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Other Locations:

Erindale College 828-5246 Scarborough College 284-3251



Message From Greg Gerrie

On behalf of the Career Centre I would like to congratulate all those students involved in Engineering Career Week '88.

There were record breaking turnouts at all three events this year. In fact there were complaints about overcrowding. There is a heightened sense of career search awareness and enthusiasm in this year's student engineering body!

A special thanks to Virginia Jung, your student employment chairperson, and all those volunteers who worked so very hard to make the week a smashing success. The Career Centre applauds our enthusiasm and dedication!

Greg A. Gerrie
Engineering Liaison Coordinator



APEO Student

From Thursday, October 20th through Saturday, October 22nd, six University of Toronto Engineering delegates attended the APEO Student Conference in Waterloo. The conference was entitled "Engineering: Where do you fit in?" and organized by the University of Waterloo Engineering Society. The intent of the conference was to help students to decide which facets of engineering to focus their attention on, as well as to promote engineering professionalism in general.

What does the future hold for you? Will you do research that will change the course of history; start your own engineering firm; become the Chief Executive Officer (CEO) of a major corporation; become a cog in the wheel of a giant firm? If you are not sure of your direction as a professional engineer, then read on.

The conference was divided into several distinct themes. On Friday, the focus was on career alternatives that are available to engineers in the work place. Saturday morning's sessions focussed on the engineering profession, touching on important issues such as social responsibility, visibility of the profession, and the education and training of the engineer. This session featured University of Toronto's own Professor Willem Vanderburg, the director of the Centre for Technology and Social Development. The afternoon workshops then dealt with incorporating the student into the engineering profession.

The following is a summary of the ideas presented by each of the session's speakers:

Session I - Introduction and Welcome Address

Dr. Doug Wright, President of the University of Waterloo

Dr. Wright kept his welcome short and simple (since he had a convocation to run off to). He stressed that we must broaden our perspective of the engineering profession. He cited examples of the engineer in fields varying from the

"traditional" types to jobs as hospital administrators. Furthermore, Dr. Wright emphasized that "engineering is a modern liberal education for technological society."

Matt Snell, University of Waterloo Engineering Society President

Matt continued on the theme of the diversity of engineering. He cited the many doors that are open to the engineer upon graduation. An engineer is typically overwhelmed with choices as a student (i.e. should I go into Chem or Mech; what should I do a full or half year thesis on, should I get faced tonight?), however these choices pale in comparison to the career choices open to the graduating engineer.

Session II - Working in Government

Dr. Roger Higgin, Ontario Energy Board

Many view working for government as being swallowed by a faceless bureaucracy. Dr. Higgin tried to convince us that this was not the case. For example, he stated that promotion by the merit principle was often circumvented by politics. In other words, being in the right place at the right time is everything in government.

Traditionally, government engineers were involved in the construction of bridges, dams and other such structures. However, true engineering positions are diminishing in government, giving way to jobs to involving policy development and implementation. A new openness in government makes many of these jobs open to engineers.

Session III - Working in Research and Development

Dr. Rudy Lepp, Atomic Energy Board of Canada

Dr. Lepp introduced the AECL Chalk River operations with respect to the engineer in a research and development environment. Chalk River is home to such projects as the

National Research Reactor (the largest research reactor in the world used in the development of CANDU) and the current Slowpoke 3 reactor effort. Other research at Chalk River includes work in food irradiation, tomography (essentially gamma X-rays) as well as work on the O-rings for Morton-Thiokol.

In conclusion, Dr. Lepp stressed that communication skills were essential in all research and development work. The researcher must have both oral and written skills to flourish in the R and D field.

Session IV - Working in a Large Company

Nick Monsour, Polysar Limited, Past APEO President

Polysar Limited, recently merged with Nova corporation, is the largest synthetic rubber producer in the world. It is a Canadian company with many international branches.

Mr. Monsour quickly pointed out that when one joins a large corporation, the new engineer starts on the 'learning curve' once again. Most large corporations will put a new recruit on a training program that will teach the various aspects of the field directly pertaining to the new engineer's work. Mr. Monsour also warned that an engineer working for a large corporation can fall into the trap of becoming a "white collar engineer". That is, the engineer should be eager to go out into the field to insure that his design work is implemented to specifications. After all, the design is only as good as the installation. He also added that large companies have ample opportunity for technical people (engineers inclusive) to rise into middle management and beyond. Another benefit of working for a large corporation is that you will most likely be given ample opportunity to travel.

In summary, Mr. Monsour related his positive experiences with working for a large company and urges

graduating engineers to look very carefully into such a career.

Session V - Being an Entrepreneur

Bill Breukelman, Chairman of IMAX Systems Corporation

Mr. Breukelman is the man behind the exciting IMAX films viewed in such theatres as the Ontario Place Cinesphere. This venture is evidently successful with over 80 IMAX calibre theatres being constructed worldwide. However, like most entrepreneurs, Mr. Breukelman did not find immediate "success". He was involved in many previous enterprises, including a toy company whose chief designer was a drug crazed PhD, who came up with new toy designs rolling around a room naked, smoking pot. When questioned about the notion of success to an entrepreneur he was quick to point out that we must change our thinking. For a new venture to merely survive is an unequivocal success in view of the success rate of new business ventures.

Session VI - Working in a Small Company

Paul Zepf, Zepf Technologies Incorporated

Mr. Zepf presented a very dynamic speech on the pros and cons of small business. He started by summing the operation of a small business in two words - ORGANIZED CHAOS.

The cons of small business exist mainly because the company is small. These range from family politics to financial difficulties to a 70-80% chance of closing within five years.

On the other hand, small also has its merits. It allows a direct boss-worker relationship, it gives excellent experience due to teamwork, and it provides a good chance at partnership in the company and frequent raises based on performance.

Like any form of business, the pros and cons are likely to be based on personal experience. Those who feel comfortable with a small family atmosphere and solid experience would likely succeed in small business.

Session VII - Working With a Consulting Firm

Harry Weihs, Consulting Engineer

Mr. Weihs began his talk by outlining the good news and the bad news about consulting engineering. He began with the bad news. Consulting engineering is not a hot-hum 9:00 to 5:00 job; it demands a lot of time and effort. There is little job security in the consulting engineering field because it is so susceptible to economic trends. Furthermore, there are little benefits offered to consulting engineers compared to engineers working for larger corporations.

Now the good news. First of all the consulting engineer is likely to earn substantially more money. The APEO salary survey quotes a median salary of \$50,000 per year. It offers the engineer far more responsibility than typical engineering jobs. With this responsibility comes the excitement of working on new projects and meeting new challenges. The area of consulting engineering is technically the most dynamic of any engineering career path. They do not manufacture products or extract minerals but rather sell the products of man's mind.



Conference

Session VIII - Keynote Address

Bill Kerr, APEO President

Mr. Kerr set the tone of the second day of the conference by introducing the notion of the social responsibility of the engineer. He sees the role of the engineer in society has been increasing given the increased demand for knowledge-intensive products. The engineer will no doubt move from the ranks of the doer of technology to the manager of technology. Mr. Kerr summarized the key points of a CCPE report projecting the role of the engineer in the future, far and near. (Refer to this month's Engineering Dimensions for more on this report).

Session IX - Education and Training

Dr. Park Reilly, University of Waterloo Professor

Dr. Reilly began his talk by distinguishing the engineer from the scientist. He relates: the scientist solves problems that he can do while the engineer solves problems that must be done. He also noted that the engineer will have to learn to cope with new engineering disciplines such as bioengineering and computer engineering. This will require a broader educational background.

Dr. Reilly went on to comment that engineering "is the only profession in which 90% of the members try to work themselves out of it"

(into middle management). Engineers must learn to be leaders in technology rather than practitioners. He sees three types of engineers emerging: the engineering manager, the manager of engineers, and the specialist engineer.

To meet the diverse needs of these various roles, both the humanities and the technical aspects must be stressed. Dr. Reilly suggests that engineering study should be pursued at the Master's level, allowing the student to gather knowledge in the social sciences as well as the necessary technical prerequisites in a regular Bachelor of Science Degree. In conclusion, he stressed that he was speaking for himself, and that these were just his personal opinions (and not necessarily those of the APEO).

Session X - Social Responsibility of the Engineer

Dr. Willem Vanderburg, Director, Centre for Technology and Social Development, U. of T.

The following is a summary of a lecture presented by Professor Vanderburg of the University of Toronto, and all references made to the ideas of Professor Vanderburg are appropriately noted by [Van 88].

According to Professor Vanderburg, "The need for engineers to understand the technical as well as the human, social, and environmental

dimensions of their discipline has recently become significantly more important." [Van 88] The social responsibility of the engineer has consequently also been a significant question for many engineering faculties. The University of Toronto and M.I.T. have been among the first to address this issue. U of T has set up the Centre for Technology and Social Development in the Department of Industrial Engineering. The Centre's goal is to provide "Complimentary Studies in Technology and Social Development to build excellence in the social sciences and humanities in the context of engineering." [Van 88] M.I.T. has undertaken a complete restructuring of their Engineering Program to be implemented over the next 10 years. M.I.T.'s objective is to "bring social technological considerations into the core of their engineering program." [Van 88]

Professor Vanderburg feels that "good engineering is simply socially responsible engineering." [Van 88] and that social responsibility in the context of engineering should be examined in terms of three trends.

The first trend is the growing number of constraints society is placing on the use and application of technology. These constraints are increasingly more real, and demanding of our attention. Professor Vanderburg said, "those who are going to successfully lead society are those people who take

humanities seriously ... the view society has on our profession will be dependant on what we do as a profession to help set the social constraints for society." [Van 88]

The second trend for engineers, in the last few decades, has been a change in the type of career path followed by engineers. Professor Vanderburg quoted a study which showed that most engineers move out of the technical parts of engineering, and into the supervisory and managerial positions, within ten years of graduation. This trend stresses the need and importance for engineers to also have the necessary skills and training needed to be effective leaders.

The third trend involves "the growing complexity between the interfaces of a technical society and the ecological spheres, and their effect on engineering decision making." [Van 88] As a result, the need for a complete, coherent, and consistent understanding of the relationship between technology and society has been increasing.

Professor Vanderburg uses an analogy to help clarify the need for social technical studies. It was the turn of the century when the Germans introduced the radical idea to include mathematical studies into the engineering program. Today it is impossible for us to imagine what engineering would be like without mathematics. Likewise, the

same will one day be true for social technical studies: they too will be an integral part of engineering.

Session XI - Support of the Engineer

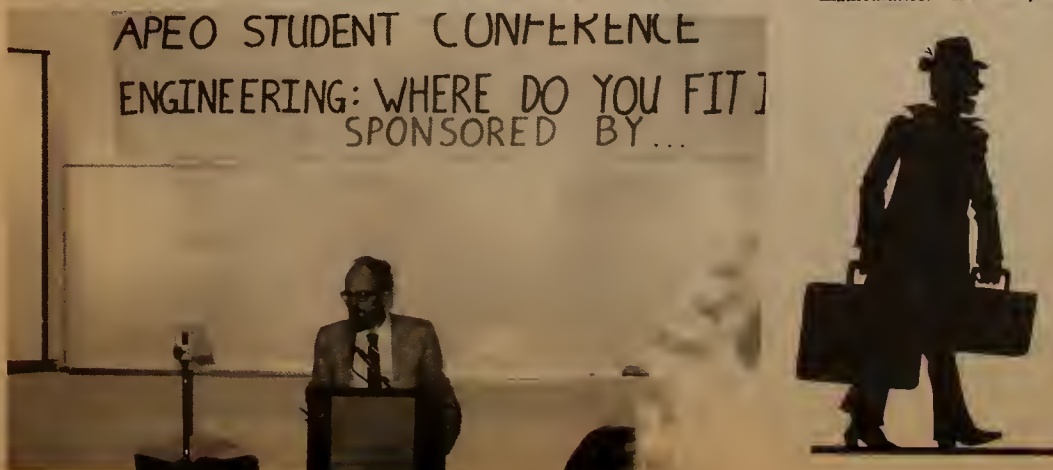
Prof. Greg McNeice, Past President of CSPE

Professor McNeice essentially stressed the importance of an engineering self-service group to serve as a voice for the engineering community. Whereas the doctors have the Ontario Medical Association and the lawyers the Canadian Bar Association to serve as a voice for their professions, the engineers have only the APEO which is actually a licensing body (like the College of Physicians and Surgeons and the Upper Canada Law Society which are concerned with the needs of the public). Without such a body, the engineering community will be unable to communicate effectively the views and needs of the professional engineer. Currently, there exists only the Canadian Society of Professional Engineers to fill this vacuum.

The conference concluded in a three hour workshop devoted to the topic of integrating the engineering student into the profession. It is the hope that this article will aid you in both selecting a career area as well as communicate the notion of the engineer as a professional. We encourage you to further explore the meaning of being a professional engineer - getting a student membership to one of the many engineering associations or technical societies is a good start. We, the engineers of tomorrow, must rise to the challenges that society lay before us, and there is no better time to prepare for those challenges than during your university years.

Brent McGaw

Conference Delegates were: Brian Perkins (Head Delegate), Brent McGaw, Ken DeJong, Alex Chapman, Graham, and Camile.



Entertainment



There's a new theory on the streets today -- the Big Bang theory. However, this isn't simply a theory of the universe as we know it, this is rock and roll.

I had the pleasure of speaking with Big Bang recently, and what I found were three, outgoing, charismatic, people that love to talk to people. Big Bang are: Paul McCann (guitar, vocals), Marc Lindeman (bass), and Steve Turner (drums). Of their music, the band says that there's "a message in our music, but we don't want to use it as a platform to preach from", (unlike many other bands of the eighties). And it's just that, good, basic, real rock and roll, no major political or social ideology, no preaching, just three guys, their feelings, and their music. Sound simple? It is. Add a hint of U2 and a dash of Simple Minds, and you'll get just what you ordered, a Big Bang.

The group has been on the Toronto music scene for the past six years under various band names and personnel. At their largest, the band was a five piece outfit with keyboards and a sax in addition to their current basics. The band's major problem seems to have been finding members with the commitment and drive required of new bands today. Finally, after 6 years, of searching for a suitable singer with the passion and power the three desired, Paul began singing last Christmas. Only half a year later, they started receiving positive responses from major recording companies worldwide. The trio's persistence finally paid off this summer when they signed to the newly formed SPY records, currently being distributed by A&M Canada. They are currently working on an International deal with several companies.

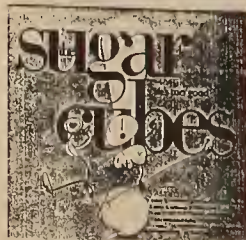
Their self-titled debut album hit record stores in early September, and appears to be doing well. The album has charted both here and in other major centres across Canada. The first single, "Into The Night", "a song about people helping each other in times of need", is currently receiving

extensive airplay on all three major Toronto rock stations, as well as across the country. One of my favourite tracks is "Freedom" - "about finding freedom after having spent time in a country where freedom is limited, drawn from Paul's experience of living in the shackles of strife torn Belfast as a kid". For those interested in Compact Discs, this one should be in stores soon.

Unfortunately, Big Bang hasn't recently performed here in Toronto, so we will have to wait to see if their live performance can match their powerful music. According to Marc: "We like to play to a crowd and involve them in our show, not leave them just sitting watching three guys on stage playing for themselves". With that in mind, their current plans for the near future include a tour after Christmas, coinciding with the release of a second single, has to be good news.

A Big Bang only happens once every few epochs, if you missed the last one, be sure not to miss this one.

Jonathan Sharpe



The Sugar Cubes -

Life's Too Good

The Sugarcubes is an Icelandic group made up of: Bjork (vocals and keyboards), Brag (bass), Einar Orn (vocals and trumpet), Siggi (drums), and Thor (guitar).

The Sugarcubes' style is really hard to describe. The lyrics are, to say the least, odd. They are a combination of the girl screaming out her (out of

time) parts, while her faithful companion singer narrates his part with an old "radio-box" sound. I'm sorry to say that I saw the Sugarcubes do a live show once, and I thought that they were terrible. I'll try to be objective, though, and say that the CD is better than seeing them play live.

Some of the tunes are kind of catchy (too bad about those lyrics). One song, (not to offend any Sugarcubes fans), which is just annoyingly awful is "Take Some Petrol, Darling". Another song, "Dragon", is not much better either--but that's sung in Icelandic, so perhaps it has some beautiful meaning that I just don't know about. Anyhow, if you have any extra money that you just don't know what to do with, keep it.



Sting - ...Nada Como El Sol

Sting's popularity in Brazil and in South America generally, prompted him to make this CD. He's made remixes of five songs in Spanish and in Portuguese from "...Nothing Like the Sun".



ANDY SUMMERS - Mysterious Barricades

This album is a solo project by Andy Summers, formerly of The Police. All the music was written by him (except for "Red Balloon", "Satyric Dancer", and "The Lost Marbles"), and he was only assisted by David Hentschel on keyboards (so I guess it's more of a duet, but who's counting?).

The entire CD is instrumental. The mood is soft--it's dedicated to the spirit of Eric Satie--and thus, makes a great 'mood tape' for those rainy nights.

The playing by both musicians is great and well worth listening to. The only thing that I think may have been added is the use of midi-guitars to run some of the keyboards.

Pubs - The Duke of York

A tiny, little pub on a secluded Prince Arthur Avenue houses the makings of a good time.

The Duke of York seems to be a place where people can go at any time of the year to enjoy the pub's food and ale. The menu includes things like hamburgers, fish and chips, lasagne, and curry. By far, my favourite is Wednesday nights: Wing Night (15 cents each). You're sure to find a lot of people there on Wednesday nights, so go early if you want to find a place to sit down.

Another impressive attribute is the selection of beers on draught. The last time that I went the selection was: Double Diamond, Smithwicks, John Smiths, Guinness, Creemore Springs, Conners, Wellington, Black Label, Fosters, Toby, Carlsberg, and Carlsberg Lite. There are also other bottled beers, as well as cider and other drinks.

Carlos Iglesias



PARIS BLACK - Secret Seduction

Behind a silhouetted album cover is the result of Paris Black's debut album. This album was produced by Steve Sexton, and was helped out by "TU". The mixing on the tracks is great--there aren't any sudden overlays of instruments. The two biggest hits so far on this album are "Buried Alive" and "Better Get Ready".

The whole album was pretty good overall--I was impressed when I first heard it (I was skeptical when I first saw it). The album's had a pretty good run up the charts in the West. Maybe we'll see it on the Toronto charts sometime soon.

Carlos Iglesias

Smile Jamaica

On September 12, 1988, Hurricane Gilbert swept through the island of Jamaica, destroying three-fifths of the homes in that country, and causing over one billion dollars damage. The Jamaican Prime Minister described it as the worst natural disaster ever to occur on the island. Since then, several countries, including Canada, England, and the United States, have sent relief supplies and are helping to raise funds for rebuilding.

Among the major fundraising efforts were the Smile Jamaica concerts, the first held in England and the second in Canada. The English benefit was held three weeks ago in the Dominion Theatre in London, where musicians such as U2, Robert Gray, Boy George, Keith Richards, Robert Palmer and Ziggy Marley performed to raise money for the stricken island.

On Sunday, October 23, 1988, the Canadian Smile Jamaica

Concert took place in the Bamboo Club on Toronto's Queen Street West. The show featured some of Canada's best bands, including Bruce Cockburn, Tom Cochrane, The Satellites, Master T, The Northern Pikes, and The Razorbacks.



U2 Reviewed

Well, the much anticipated, globally promoted new U2 album *Rattle and Hum* is out. It contains 6 live tracks from the Joshua Tree tour last year and 9 new studio tracks recorded this past summer. Unfortunately, the result is a disjointed, boring and generally sloppy album. The main problem is the producer, Jimmy Iovine. It is his job to mould the band's sound and produce a composite album. Iovine does neither. The studio songs have the band going off in so many directions that the album is uneven and lacking any focus. Previous albums had themes like religion, war and politics that tied the songs together. The theme 'this is our experimental album' carries very little weight. The word experimental can be used here because the new songs are supposed to reflect the band's fascination with America. Maybe it should have remained a fascination. Most of the new songs lack the punch of their earlier material. Bono rarely shouts or yells anymore, and Edge's guitar riffs have grown boring.

But first, the good news. There are some new songs that do stand out. Best of these is

the punchy, passionate "God Part II". It's how U2 should sound. The Bo Diddley-esque "Desire", and solemn "Heartland" are also excellent, the latter more reminiscent of The Unforgettable Fire.

The bluesy duet with B.B. King "When Love Comes to Town" shows that U2 can play American music. The other 8 new songs show that they can't. "Van Dieman's Land" shows that the Edge cannot play country music. "Love Rescue Me" is a terrible duet with Bob Dylan (Dylan contributes the terrible part) and "Angel of Harlem" is U2's attempt to play Blood, Sweat and Tears. Yecch. "Hawkmoun 269" epitomizes the problems with this album. It has a great melody but it goes on too long. In the hands of U2's previous producers Brian Eno and Daniel Lanois, the song could have been incredible. Instead it turns out only average.

Three out of the five live songs are good, giving a narrow thumbs up for this section. "Helter Skelter" is much like the Beatles version with a few nice drum fills by Larry Mullen Jr. to make it interest-

ing. "Bullet the Blue Sky" is as powerful as ever and contains a nice little speech by Bono. The standout is "Silver and Gold" showcasing Edge at his best with a ripping guitar solo. Both "Pride" and "All along the Watchtower" are slow and basically boring and "I Still Haven't found what I'm Looking for" should not have included a gospel choir in the background. The original version was fine by itself, so why screw around with it?

Now, before you get the wrong idea, the album is not totally crap. But when everything else before it was excellent, an average album just doesn't do. I think I'll wait two years for the new one, but right now, I'm going to put Unforgettable Fire on the turntable and listen to the real U2.

Eric Matusiak



A CHILD SO PERFECT

A child so perfect, so hard to believe,
How could he possibly want to leave,
He wouldn't see her, he'd never know,
But if he cared, it didn't show.

A child so perfect, her eyes so blue,
So sweet and innocent, it can't be true.
Would it take it's toll in later years?
Would it hurt and cause the tears?

A child so perfect, not hard to love,
This one was created far above,
She'd never understand why he's gone,
No one would sing her daddy's song.

A child so perfect, without a flaw,
How could he run, where was the law?
I love her so, she's my whole life,
She'll never feel the pain of strife.

A fatherless child, how can it be?
A child so perfect, a joy to see,
My precious child, I love so much,
My daughter Krista,

a heart to touch.

Sheri Noguchi
June 22, 1988

Sports

Men's Basketball First Loss

by Al Spero

The Men's Division I basketball team played their opening game last Thursday against MBA. Although full of hope and vigour, they lost a heartbreaker in the closing seconds 42 to 41.

The game began evenly, with both teams playing at a fast pace and remaining within two points of each other. As a Division II team last season, MBA will try their hand at the most competitive division in Intramural basketball. They showed that they have the raw talent, and the height, to play in Division IA, however, they are lacking the quickness and teamwork to be considered a serious competitor in the league.

Nevertheless, they pulled away in the late stages of the first half, holding SKULE™ at 16 points for about five and a half minutes while padding their lead by ten points by the end of the half.

The second half began much like the first ended with MBA scoring the first six points unanswered. However, by the fourteenth

minute mark, the tide began to turn. Wayne Johnson, Dwight Baker, and John MacQuarrie combined to start the ball rolling. SKULE™ started building up some momentum, shaving off some of the lead enjoyed by MBA. The comeback occurred on a three point play by Jonathon Wyman with seven minutes left in the game. Engineering came within two points of taking the lead.

With thirteen seconds left, SKULE™ was down by a point, but they had possession of the ball at midcourt and were playing for the last shot that would win the game. But sadly, this was not to be. Good defense and hustle by MBA caused Engineering to throw the ball away with four seconds left to record their first win of the season.

All was not lost, though. The Engineering squad showed some great potential and determination that should make them a winning team this season. They make up for their lack of height and size by quickness and guts, two characteristics that they will have to rely upon to take them to the championship.

All players are worth mentioning for their spirited play and grit: John MacQuarrie, Wayne Johnson, Aldo Sperduti, Jim Tsagarells, Jonathon Wyman, Dwight Baker, Alon Morris, Rob Pyke, and Taras Skyloa.

Foster's Cup

On October 16, 1988, Varsity Stadium was the setting for a unique event - Foster's Cup. Australian rules football came to town to show us a display of how the Aussies have fun.

The sport is an odd combination of soccer, football, rugby, and who knows what else. There's no equipment used except for the ball (sort of like a football, but it bounces more).

The rules are scarce. There are four 25 minute quarters in the game, and the playing is basically non-stop. When a team scores, the other team gets the ball at their end of the field (as in basketball). The final scores are also in the basketball range. At this game, the Collingwood Magpies beat the back-home champions, Hawthorn Hawks, 119 to 105.

Carlos Iglesias

EngSoc Stuff

LGMB

The Lady Godiva Memorial Band was one of the major reasons that U of T Day 8T8 was so swell (if you're not going to blow your own horn, who will?). The Bnad inflicted their own style of cacophonous flatulence upon many willing (and even more unwilling) ears. They stumbled around campus in the afternoon, and ended up at the Homecoming football game (which we tied 8-8). The highlight of the game occurred at half time, when the current Bnad lineup teamed forces with the Alumni Bnad, and took the field by storm (even though it was sunny at the time). A good time was had by all, and to all a good time was had. The triple prize-winning, quadruple (soon to be quintuple) record-setting Lady Godiva Memorial Band will be going to many, many more events which will include consumption of many beverages, and can also make you a national celebrity (for 15 seconds anyway). We will really be making our FIFTH musical bum (music album, that is). There are, at the present moment, in the Engineering Stores, MANY copies of the FOURTH L.G.M.B., for the low, low price of only \$3.99. So run out and buy it now, so we can afford to record our next album. Thanks for coming out.



My View From Simcoe Hall

As your member of the Governing Council, I want to offer my opinion of the recent Toike controversy. First, in terms of background, it started at Council with a question to President Connell by Joanne Uyede, the Chair of the University Affairs Board. She found the issue offensive and stated that the University could be seen as condoning it since U of T collects fees on the Engineering Society's behalf. Then, the President, forced to take a stand, had little choice except to come out against The Toike.

For me it is difficult to defend The Toike's content because clearly, some people are going to be offended by it. However, many people, including myself, thought the issue was funny, and I don't agree with the President that it "derides, debases, and dehumanizes".

At worst, I think one could accuse The Toike of bad taste, and that should not be legislated against. It is not appropriate for Governing Council to get involved in the activities of independent student societies, as these matters are best dealt with at the Faculty or College level. Therefore, I fully support the actions taken by the Engineering Society, and I hope that all EngSoc members will come to the aid of our eighty-seven year old institution, The Toike Oike.

Michael Bilaniuk
ELEC 8T9
Member,
Governing Council
October 29, 1988

HULLO EVERYONE!

Happy Midterms! Hang in there -- you'll survive.

I hope you have all heard about the upcoming Referendum regarding The Toike. On November 22nd and 23rd, all engineering students will have an opportunity to state their opinion of The Toike. There will be three statements to choose from. For their wording, see the notice printed in this Cannon. We will not run a 'YES' Campaign.

We would like all engineering students to make their own decision.

Please come out and vote, and let us know what you want.

Thanks.

Keren Morehead

ENGINEERING SOCIETY EXECUTIVE MEETING

Monday November 7th 1988

5 pm in SF B740

(BEvERages and cookies will be served)

NOTICE OF REFERENDUM

On November 22 and 23, from 9 AM to 4 PM, all engineering students are urged to vote on the following:

☐ I would like to see the Toike Oike continue in its current format.

☐ I would like to see the Toike Oike continue as a humour publication, but with stricter guidelines.

☐ I do not wish to see the Toike Oike published again in any form.

Please come out on Nov. 22 or 23 and use your right to vote.

Notice of Meeting

PROFESSIONAL DEVELOPMENT COMMITTEE MEETING

Wednesday, November 9, 1988
at 5:00 p.m.
in GB405.

Upcoming Suds Events:

November 11 : Performing LIVE at SUDS,
The Three Skins Band !!!

November 25 : The One Month to Christmas Pub !!!
It's the last pub of the term,
so, come on out and have some fun
before exams start.
Candy canes will be provided.
Special Guest: THE SKULE STAGE BAND

OKTOBERFEST

WOW!

On October 12, 1988, Engineering had its road trip to Kitchener/Waterloo to partake in the bliss of the city's Oktoberfest. And WHAT A PARTY!!!

who got a ticket, everyone had a wild time. The polka music was great, and the beer flowed by the pitcherful. For those who had an appetite, many a wurst was to be had, and to top it off, Schnapps.

After the fabulous time I had, I'm already looking forward to next year.

Unfortunately for many, the trip was sold out, but for those the Engineering Cannonball

(Cannon Ball) which is to be held on Saturday, January 28, 1989. For those interested in helping to get the show on the road, just leave your name and number in my Social Mailbox in the EngSoc.

See ya,

Steffen Waite

Social Chairman

SAC Stuff

SAC Editorial

The Women's Centre. Wow. I mean, what's all the fuss about?

In Canada, a woman wasn't officially recognized as a 'person' by our own government until 1929. Statistics Canada, in a 1986 census, determined that the average working Canadian male earned \$23,265 per year, while the average working female earned \$12,615 per year. So what are people doing raising hell about women's rights anyway?

I completely stand behind the Women's Centre's mandate. If it were not for determined women's groups fighting for the liberation of women, I, along with other women who make up about 10% of this Faculty, wouldn't be here gracing your halls. People my age kinda forget about this progress. I love Engineering and think that we're a bunch of great people doing a very important job in our world. So you can see why I'm

grateful to groups of women, like the Women's Centre, for getting me here. The problems that the Women's Centre have had with our humour (and harmless attitudes) are small compared to their important mandate of helping women like me.

When it comes down to funding, it's very simple. The Women's Centre provides a service to students at U of T and not only women who at least can feel good about having a place to go to if ever they run into problems (like rape, childbearing, child care, harassment, etc.), but also

men indirectly. Equality isn't going to hurt anyone; it's something we all want. So SAC should fund the Women's Centre because simply: It's a cycle of student fees back into student services.

Official recognition is something else altogether. SAC's general laws state that only clubs that do not practice discrimination should be recognized. That's why fraternities aren't recognized by SAC. Makes sense. The fact that the Women's Centre doesn't allow men on their Executive is discriminatory. So, it shouldn't have been recognized by SAC. Period. It should, however, be funded vigorously by SAC and supported in spirit by all of us.

The Toike. Wow, wow! Hot Stuff! The key word here is that nasty, filthy C-word. You've got it. Censorship.

We will not be censored. If they try to censor us, we'll publish faster and fierouser. The other thing is that each issue has a disclaimer which tells everyone that The Toike is a HUMOUR publication. I told Lois Reimer at a recent Status of Women Meeting that I don't consider The Toike offensive when regarded as humour. I'm sure that any self-respecting U of T student would agree that censorship of humour is not the way to go, or the attitude to take.

Live long and prosper, Toike!

Isis Caulder
SAC Representative

SAC Free Films

November 5, 1988 : Time Bandits
November 12, 1988 : Blade Runner
November 19, 1988 : The Party
November 26, 1988 : A Room With A View

All SAC Free Films are shown at 7:00 p.m. on Saturday evenings in the Medical Sciences Building. SAC Free Films are sponsored in part by APUS, the Association for Part-Time Undergraduate Students.

Drop any suggestions for second term films in the EngSoc SAC mailbox.

SAC Annual General Meeting

(Audits and stuff)

To be held on November 16, at 7:00 p.m. in the Croft Chapter House at University College.

Municipal Elections

All Candidates Meeting to be held on November 2, at 3:00 p.m. in the Hart House Debates Room.

Federal Elections

All Candidates Meeting to be held on November 9, at 4:00 p.m. in the Hart House Debates Room.

Other Tidbits

---> SAC disqualified the Engineering chariot from the U of T Day Chariot Race (which we would have won).

---> The Women's Centre has been recognized by SAC.

---> Peter Mabey beat Don Rambajan at wrestling (three times!!!).

---> The Mice returned SAC's "War Room" Door with a couple of cannon scars and a "SKULE" engraving.

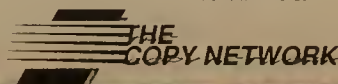
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A Blast From The Past

Ian McCallum, 4T2

Today, as I approach the end of my first year, it hardly seems possible that so much has happened in such a short space of time since I left my happy hearth to become a forgotten man in S.P.S. No matter how I look at it, the impression still remains that I am a forgotten man. All freshmen are forgotten men. A broad statement, but undoubtedly we will grow up some day. We were told we are worms, yet to behave like men; to do our own thinking, yet to use our own methods; to quench our thirst with forty beers, yet uphold the honour of School.

My infantile idea of an engineer, before I was so fortunate as to be enrolled as one myself, was of a man clad in hip boots, breeches, and dirty shirt, striding through the wilderness with a transit over one shoulder and a pick-axe over the other with a tape trailing behind. But a sad disillusionment awaited me. On my very first day I was told to be a gentleman at all times, while outside "Sophs" prepared a tapping tub. I was told to be neat, concise, to the point, and the romantic hero of my dreams faded in the afterglow.

My future hopes mean very little. Many who graduate in a given course certainly do not find jobs in their chosen field. Not committing myself, I can quote the ancient maxim, "Twixt cup and lip, there's quite a way". I can only hope.

My year, discounting my scholastic effort which has yet to show results, has been a complete success. I have dipped into the bottomless pit of knowledge, and I have not come out empty handed. I have met many people whom I regard as friends. I have been taught about friendships, loyalty, and that very badly misnamed emotion—School spirit—which has woven itself around me from the first day.

The time left this year is short, as the finals close in. The final grind has already started. As I gaze into the fire, my pipe dreams disappear with smoke. One thought alone comes to my mind—"Stupid fellow—get to your books."

I have still a hope. A blind pig sometimes finds an acorn and I might be able to answer a question or three on the final papers. My fate lies in the laps of the gods and hangs by the slender thread, the sense of humour of the staff. May they remember their freshman year!

1939

Jeep Dewar, 4T0:

Despite the favourite cry that third year is designed to kill or cure, this year has been the gayest of all three. The Soph-Frosh and School Nite were, as usual, the best mass production shambles of the season, with the year parties coming a close second. School At-Home this year was a honey and certainly goes down in history as the best party yet. Never at any one dance have I seen so many Schoolmen thoroughly enjoying themselves, swinging out to both sweet and hot music.

We can all remember coming to School with our great respect for professors and for Third and Fourth Year men. Now here we are in Third Year still with our great respect for the profs, especially in these months of stress, but we really aren't much older, and I can't help wondering if the present First Year stands in awe of us because if they do they are suckers. We have learned a few things, however, and developed a much broader and sounder outlook; not so much from labs and lectures as from informal discussions with the profs when they let their hair down, and from the bull-sessions held regularly in the Grads every afternoon. We have lost our self consciousness, most of our rowdiness and, thank the Lord, the bad habit of taking ourselves too seriously. Unfortunately, we have lost all desire to work, too, but with spring ploughing only a month away we just have to start studying tomorrow or at the latest, next Monday night.

Good old 4T0 has more than done its bit for the University and School, with nearly every member of the year contributing in some way to the athletic and social events. We are all looking forward to Fourth Year and the "do" we have been promising ourselves if we could ever get that far. I just heard that the year fund is over four hundred dollars, so start counting on the greatest Grad Ball ever thrown.

Pete McCurdy, 4T1;

Putting away the shovels in the north, we headed south to the Little Red School House. On the way we took a gander at U.C. steps to give the new "crop" the once-over—well, by now, everyone has their own opinion about them.

The first thing to be attended to was the "Frosh". One by one they wheeled out—we rolled up their pants, and so on; suddenly pants turned into skirts! What were we to do in the form of initiation besides find out names and telephone numbers?—which, I may add, several people found quite handy. So a problem for 4T2 is to find some way for School to proudly exhibit 4T3 freshettes.

No sooner had the feud between Sophs and Frosh ended than another battle began, and that was none other than S.P.S. vs. Sadie Hawkins. Many a Schoolman will remember that week for the rest of their life. Next year some scheme should be arranged to give better batting average of successful Sadies (i.e., from our point of view), such as double dating rather than blind dating.

We all feel very sorry for the Deau as he found his lectures rather dull this year, only being able to address "gentlemen". Better luck next year!

The "Do's", such as the School At-Home, School Nite, were better than ever this year; at least we thought so—perhaps it's because we had learnt how to really appreciate them (i.e., who and what to take to which and why).

Rugby dances, hockey, lacrosse, swimming, basketball, debating, and so on—all were more than represented by Second Year. If you don't believe me, or hadn't realized it, take a squint through this book. See! it's true! So we of 4T1 are really great "balls of fire"!

Here's hoping that all of us will be "permitted" to do five or six lab reports per week next year—we will kick about it later. I hope, I hope.



Jack Miller, 3T0

If you think those long faces are due to the exams creeping up on the innocent of 3T0, you are mistaken. Faced by the prospect of working for a living, we, the most enlightened of Schoolmen, look with awe at the end of April. Some, with a forced smile, proclaim their gladness at being done once and for all with the examination room; but it is with a heavy heart we forego our game of wits with the profs; from the time we successfully crept in the back of C26 at 9.30 to the time we no longer deemed lectures an essential part of education, we have been on the winning side.

Taking time out to look over those activities we enjoyed before gloom encamped upon our persons, we remember that memorable Christmas party at the Boulevard Club. Finding the dance hall virgin, your observer betook himself to the bowling alley via the "pub", and, arriving there some two hours later, beheld many strange sights. The party was a bowling success.

By cutting down meals to one every so often, rolling our own and putting the bite on unsuspecting Art's men, we managed to take in the School Dinner, a marvellous At-Home, and even endured the "prudish" atmosphere of School Nite.

And now turning our thoughts to the future, we think of—our Thesis? No! The Graduation Ball? Of course! We hope no one pours us down that fire escape again.

Although still incomplete masters of a few minor formulae, we are proud to say that in the soothing atmosphere of the Park Plaza we have solved many of the world problems. We can think of no better place to solve them. With this advice to those who follow, we look for new worlds to conquer.